AIR QUALITY PERMIT

Issued To: Bitter Creek Pipelines, LLC
Squirrel Creek Battery
WBI Holdings, Inc.
P.O. Box 131
Glendive, MT 59330

Permit #3038-04
Application Complete: 7/23/07
Preliminary Determination Issued: 8/1/07
Department's Decision Issued: 8/22/07
Permit Final: 9/07/07
AFS Number: 003-0009

An air quality permit, with conditions, is hereby granted to Bitter Creek Pipelines, LLC (BCPL), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

BCPL owns and operates a natural gas compressor station and associated equipment located north of Montana State Highway 314 and east/northeast of Squirrel Creek, approximately 1 mile northwest of Decker, Montana. The legal description of the site location is the NW¼ of the NE¼ of Section 30, Township 9 South, Range 40 East in Big Horn County, Montana. The facility is known as the Squirrel Creek Battery. A complete list of the permitted equipment is contained is Section I.A of the permit analysis.

B. Current Permit Action

On July 23, 2007, the Department of Environmental Quality (Department) received a complete application for a permit modification from BCPL. Specifically, BCPL proposed the addition of two natural gas compressor engines with a maximum rated design capacity of up to 860-brake horsepower (bhp) per engine and the removal of two 380-bhp capacity Caterpillar natural gas compressor engines from permitted operations. Further, the current permit action removes one of the two 400-bhp capacity Waukesha F18GL compressor engines previously added to the facility in accordance with ARM 17.8.745 (de minimis rule). In addition, BCPL requested that the conditions/limits applicable to the proposed engines be written in a de minimis friendly format to allow for operational flexibility.

SECTION II: Conditions and Limitations

A. Operating and Emission Limitations

1. BCPL shall not operate more than three natural gas compressor engines at any given time (ARM 17.8.749).

2. BCPL may operate one lean-burn Waukesha F18GL natural gas compressor engine with a maximum rated design capacity of 400-bhp. This unit is identified as Unit #1 (ARM 17.8.749).

3. In addition to the compressor engine allowed under Section II.A.2, BCPL may operate two additional natural gas compressor engines with a maximum rated design capacity of 860-bhp per engine; however, only the following engines may be used to satisfy this requirement (ARM 17.8.749):

- Cummins GTA 855C256 (256-bhp, rich-burn);
- Caterpillar G3408TA (400-bhp, rich-burn);
- Waukesha F18GL (400-bhp, lean-burn);

- Caterpillar G3508LE (633-bhp, lean-burn)
- Waukesha 3524GSI (840-bhp, rich-burn); and
- Caterpillar 3512LE (860-bhp, lean-burn).

These units are identified as Unit #2 and Unit #3.

4. Each Waukesha F18 GL, Caterpillar G3412LE, and Caterpillar 3512LE lean-burn compressor engine identified in Section II.A.3 and operated at the BCPL facility shall be controlled with a catalytic oxidation unit and an air-to-fuel ratio (AFR) controller. The pound per hour (lb/hr) emission limits for each engine shall be determined using the following equation and pollutant specific grams per horsepower-hour (g/bhp-hr) emission factors (ARM 17.8.752):

   Equation

   Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) * maximum rated design capacity of engine (bhp) * 0.002205 lb/g

   Emission Factors

Oxides of Nitrogen (NO_x):	1.5 g/bhp-hr
Carbon Monoxide (CO):	0.5 g/bhp-hr
Volatile Organic Compounds (VOC):	1.0 g/bhp-hr

5. Each Caterpillar 3508LE lean-burn compressor engine identified in Section II.A.3 and operated at the BCPL facility shall be controlled with a catalytic oxidation unit and an AFR controller. The lb/hr emission limit(s) for each engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

   Equation

   Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) * maximum-rated design capacity of engine (bhp) * 0.002205 lb/g

   Emission Factors

NO_x:	2.0 g/bhp-hr
CO:	0.5 g/bhp-hr
VOC:	1.0 g/bhp-hr

6. Each rich-burn compressor engine identified in Section II.A.3 and operated at the BCPL facility shall be controlled with non-selective catalytic reduction (NSCR) and an AFR controller. The lb/hr emission limits for each engine shall be determined using the following equation and pollutant specific g/bhp-hr emission factors (ARM 17.8.752):

   Equation

   Emission Limit (lb/hr) = Emission Factor (g/bhp-hr) * maximum rated design capacity of engine (bhp) * 0.002205 lb/g

Emission Factors

NO_x: 1.0 g/bhp-hr
CO: 2.0 g/bhp-hr
VOC: 1.0 g/bhp-hr

5. BCPL shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6-consecutive minutes (ARM 17.8.304).

6. BCPL shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

7. BCPL shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.3 (ARM 17.8.749).

B. Testing Requirements

1. Each natural gas compressor engine identified in Section II.A.3 shall be tested and compliance demonstrated with the NO_X and CO emission limits contained in Section II.A.4, Section II.A.5, and Section II.A.6, as applicable, within 180 days of initial start-up of each affected engine. After the initial source test, testing shall continue on an every 4-year basis or according to another testing/monitoring schedule as may be approved by the Department in writing (ARM 17.8.105 and 17.8.749).

2. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

3. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. BCPL shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. BCPL shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above it's permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

3. All records compiled in accordance with this permit must be maintained by BCPL as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

D. Notification

1. BCPL shall provide the Department with written notification of the actual start-up date of each compressor engine identified in Section II.A.3 within 15 days after the actual start-up date(s) of the affected unit(s) (ARM 17.8.749).

2. BCPL shall provide the Department with written notification of the engine model for each compressor engine installed at the site for each compressor engine identified in Section II.A.3 within 15 days after the actual start-up date(s) of the engine(s) (ARM 17.8.749).

SECTION III: General Conditions

A. Inspection – BCPL shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if BCPL fails to appeal as indicated below.

C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving BCPL of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*. (ARM 17.8.756).

D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401, *et seq*., MCA.

E. Appeals – Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by the Department at the location of the source.

G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by BCPL may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Construction Commencement – Construction must begin within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall be revoked (ARM 17.8.762).

Permit Analysis
Bitter Creek Pipelines, LLC
Permit #3038-04

I. Introduction/Process Description

Bitter Creek Pipelines, LLC (BCPL) owns and operates a natural gas compressor station and associated equipment located north of Montana State Highway 314 and east/northeast of Squirrel Creek, approximately 1 mile northwest of Decker, Montana. The legal description of the site location is the NW¼ of the NE¼ of Section 30, Township 9 South, Range 40 East in Big Horn County, Montana. The facility is known as the Squirrel Creek Battery.

A. Permitted Equipment

BCPL is allowed to operate the following equipment at the Squirrel Creek Battery compressor station:

- Unit #1: A 400-brake horsepower (bhp) capacity Waukesha lean burn compressor engine; and
- Units #2 and #3: Any two of the following compressor engines:

    - Cummins GTA 855C256 (256-bhp, rich-burn);
    - Caterpillar G3408TA (400-bhp, rich-burn);
    - Waukesha F18GL (400-bhp, lean-burn);
    - Caterpillar G3508LE (633-bhp, lean-burn);
    - Waukesha 3524GSI (840-bhp, rich-burn); and
    - Caterpillar 3512LE (860-bhp, lean-burn).

B. Source Description

Natural gas is gathered in the field (wells) and transferred via flowlines to the meterhouse where it is again transferred to various compressor stations, including the Squirrel Creek Battery. From the compressor stations, the gas is metered and sent to a central treating and compression facility.

C. Permit History

On March 7, 1999, Redstone Gas Partners, L.L.C. (Redstone) was issued **Permit #3038-00** for the construction and operation of a natural gas compressor station and associated equipment (Squirrel Creek Battery). The Squirrel Creek Battery natural gas compressor station included two 380-hp Caterpillar natural gas compressor engines.

On April 5, 2001, Redstone submitted a request to transfer ownership of Permit #3038-00 from Redstone to BCPL. **Permit #3038-01** was issued to incorporate the change requested by Redstone and BCPL. On May 18, 2001, **Permit #3038-01** replaced Permit #3038-00.

On September 5, 2003, the Department of Environmental Quality (Department) received a letter requesting a de minimis change at the Squirrel Creek Battery. BCPL requested to add a 400-hp Waukesha F18GL lean-burn compressor engine to the facility. The permit action incorporated the change into the permit according to the provisions of the Administrative Rules of Montana (ARM) 17.8.745(1). In addition, the permit format, language, and rule references were updated to reflect current Department permit format, language, and rule references. **Permit #3038-02** replaced Permit #3038-01.

On April 27, 2005, the Department received a letter requesting a de minimis change at the Squirrel Creek Battery. BCPL requested to add a 400-hp Waukesha F18GL lean-burn compressor engine to the facility in accordance with the provisions contained in ARM 17.8.745(1). In addition, the permit format, language, and rule references were updated to reflect current Department permit format, language, and rule references. **Permit #3038-03** replaced Permit #3038-02.

D. Current Permit Action

On July 23, 2007, the Department received a complete application for a permit modification from BCPL. Specifically, BCPL proposed the addition of two natural gas compressor engines with a maximum rated design capacity of up to 860-brake horsepower (bhp) per engine and the removal of two 380-bhp capacity Caterpillar natural gas compressor engines from permitted operations. Further, the current permit action removes one of the two 400-bhp capacity Waukesha F18GL compressor engines previously added to the facility in accordance with ARM 17.8.745 (de minimis rule). In addition, BCPL requested that the conditions/limits applicable to the proposed engines be written in a de minimis friendly format to allow for operational flexibility. **Permit #3038-04** replaces Permit #3038-03.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARMs and are available, upon request, from the Department. Upon request, the Department will provide references for location of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

BCPL shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}

BCPL must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, BCPL shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. (4) Commencing July 1, 1972, no person shall burn liquid or solid fuels containing sulfur in excess of 1 pound of sulfur per million Btu fired. (5) Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. BCPL burns natural gas in the compressor engines, which meets this limitation.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS). This facility is not an NSPS affected source because it does not meet the definition of any NSPS subpart defined in 40 CFR Part 60.

8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. A major source of Hazardous Air Pollutants (HAPs), as defined and applied in 40 CFR Part 63, shall comply with the requirements of 40 CFR Part 63, as applicable, including the following subparts:

   - Subpart HH – National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities.
   - Subpart HHH – National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities
   - Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.

   The BCPL facility is not subject to the provisions of 40 CFR Part 63, because the facility is not a major source of HAPs.

D. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. BCPL submitted the required permit application and application fee for the current permit modification.

2. ARM 17.8.505 When Permit Required--Exclusions. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

E. ARM 17.8, Subchapter 7 – Permit, Construction, and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. BCPL has the potential to emit more than 25 tons per year of NO_X and CO; therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. This rule requires that a permit application be submitted prior to installation, alteration, or use of a source. BCPL submitted a complete permit application for the current permit action on July 23, 2007. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. BCPL submitted an affidavit of publication of public notice for the July 10, 2007, issue of *The Billings Gazette*, a newspaper of general circulation in the Town of Billings in Yellowstone County, as proof of compliance with the public notice requirements.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis and determination is contained in Section III of this permit analysis to Permit #3038-04.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving BCPL of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

11. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

12. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

13. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source since this facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

a. PTE > 100 tons per year of any pollutant;

b. PTE > 10 tons per year of any one HAP, PTE > 25 tons per year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or

c. PTE > 70 tons per year of particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}) in a serious PM_{10} nonattainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #3038-04 for BCPL, the following conclusions were made:

a. The facility's PTE is less than 100 tons per year for any pollutant.

b. The facility's PTE is less than 10 tons per year for any one HAP and less than 25 tons per year for all HAPs.

c. This source is not located in a serious PM_{10} nonattainment area.

d. This facility is not subject to any current NSPS.

e. This facility is not subject to any current NESHAP standards.

f. This source is not a Title IV affected source, nor a solid waste combustion unit.

g. This source is not an EPA designated Title V source.

Based on these facts, the Department determined that the BCPL Squirrel Creek Battery is a minor source of emissions as defined under the major source Title V operating permit program.

III. BACT Determination

A BACT determination is required for each new or altered source. BCPL shall install on the new or altered source the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized.

A BACT analysis was submitted by BCPL in the application for Permit #3038-04, addressing some available methods of controlling emissions from natural gas compressor engines. The Department reviewed these methods, as well as previous BACT determinations in order to make the following BACT determination(s). Under the current permit action, BCPL proposed the construction and operation of two natural gas compressor engines each with a capacity of up to 860-bhp. In the application for permit modification, BCPL identified available lean-burn and rich-burn natural gas compressor engines with design capacities ranging from 256-bhp to 860-bhp, which are suitable for the proposed project. Therefore, both rich-burn and lean-burn engines, and any available and technically feasible control strategies for those engines, have been considered in the BACT analysis for the proposed project.

Compressor Engine BACT

A. NO_x BACT

The following available control technologies were reviewed for the NO_X BACT analyses:

- Lean-burn engine with a selective catalytic reduction (SCR) unit and an air-to-fuel ratio (AFR) controller
- Lean-burn engine with an SCR unit
- Lean-burn engine with an AFR controller
- Lean-burn engine with a non-selective catalytic reduction (NSCR) unit and AFR controller
- Lean-burn engine with an NSCR unit
- Lean-burn engine with no additional controls
- Rich-burn engine with an NSCR unit and an AFR controller
- Rich-burn engine with an NSCR unit
- Rich-burn engine with an AFR controller
- Rich-burn engine with an SCR and an AFR controller
- Rich-burn engine with an SCR
- Rich-burn engine with no additional controls

SCR applied to rich-burn engines is technically infeasible because the oxygen concentration from rich-burn engines is not high enough for an SCR unit to operate properly. NSCR on lean-burn engines is technically infeasible because the engine must burn a rich fuel mixture

for the NSCR to properly operate. Adverse environmental impacts could occur with an SCR unit operating on lean-burn engines at variable loads as required by a typical compressor engine. SCR units are typically installed on process units that have a constant or low variability in load fluctuation. When engine load changes excess ammonia (ammonia slip) may pass through the system and out the stack or not enough ammonia will be injected. SCR units are technically infeasible because of the potential adverse environmental impacts from the typical load fluctuations that are required for compressor engines. SCR units have not been installed on lean-burn compressor engines in Montana. AFR controllers for 400-bhp range engines (the lean-burn Waukesha F18 GL and Caterpillar G3508LE proposed under current permit action) are not currently available.

The following tables list the technically feasible NO_x emission control options in order of the highest control efficiency to the lowest control efficiency for the range of acceptable engines analyzed for the proposed project:

200-bhp Range Engines		
Control Technology	**% Control**	**NO_X Emission Rate (g/bhp-hr)**
Rich-Burn engine with NSCR	95.0	1.0
Rich-Burn without Control	--	20.0

400-bhp Range Engines		
Control Technology	**% Control**	**NO_X Emission Rate (g/bhp-hr)**
Rich-Burn engine with NSCR	95.0	1.0
Lean-Burn without Control	92.5	1.5
Rich-Burn without Control	--	20.0

600-bhp Range Engines		
Control Technology	**% Control**	**NO_X Emission Rate (g/bhp-hr)**
Lean-Burn without Control or with AFR only	90.0 to 92.5	1.5 to 2.0
Rich-Burn without Control or with only AFR	--	20.0

800-bhp Range Engines		
Control Technology	**% Control**	**NO_X Emission Rate (g/bhp-hr)**
Rich-Burn engine with NSCR and AFR or NSCR only	95.0	1.0
Lean-Burn without Control or with AFR only	92.5	1.5
Rich-Burn without Control or with only AFR	--	20.0

The control methods listed above are widely used and cannot be eliminated solely based on environmental or energy impacts. Lean-burn engines do emit relatively higher HAP (formaldehyde (HCHO)) emissions than rich-burn engines. Lean-burn engines cannot be eliminated based on higher formaldehyde emissions, but the higher formaldehyde emissions can affect the BACT determination. The 600 and 800-bhp range engines without AFR control are removed from the analysis because AFR control would be required and is consistent with other recently permitted similar sources.

The table below provides a summary comparison of NO_x emissions and emission controls and control costs for the available and technically feasible engines proposed by BCPL and for comparable engines considered under the current permit action:

NO_x Summary and Comparison							
Engine	**Engine Rating (bhp-hr)**	**Engine Type[a]**	**Control Technology[a]**	**NO_x Controlled (g/bhp-hr)**	**NO_x Controlled (ton/yr)[b]**	**Annualized Control Cost ($/yr)[c]**	**Cost Effectiveness ($/ton)**
Caterpillar 3306TA	200	RB	NSCR/AFR	1.0	36.7	34,360	936
Cummins GTA855C56[d]	256	RB	NSCR/AFR	1.0	46.9	39,324	838
Caterpillar G3408TA[d]	400	RB	NSCR/AFR	1.0	73.3	50,840	694
Waukesha F18GL[d]	400	LB	LB/OC	1.5	1.9	0	0
Caterpillar G3412LE	627	LB	LB/OC	1.5	3.0	0	0
Caterpillar G3508LE[d]	633	LB	LB/OC	2.0	0	0	0
Waukesha 3524GSI[d]	840	RB	NSCR/AFR	1.0	154.0	81,299	528
Caterpillar 3512LE[d]	860	LB	LB/OC	1.5	4.1	0	0

[a] RB = rich-burn engine; LB = lean-burn engine; NSCR/AFR = non-selective catalytic reduction and air-to-fuel ratio controller; LB/OC = lean-burn engine and oxidation catalyst.

[b] Amount of NO_x controlled is difference between 20 g NO_x/bhp-hr minus the controlled emission rate for rich-burn engines and 2 g NO_x/bhp-hr minus the controlled emission rate for lean-burn engines.

[c] Control costs were established using the estimation procedures provided in EPA's OAQPS "Cost Control Manual". A more detailed analysis of control costs is provided in the application for Permit #3038-04 and is on file with the Department.

[d] Engines proposed by BCPL under current permit action.

As indicated in the table above, only rich-burn engine technology is available for the proposed and comparable engines in the 200-bhp range. The use of a rich-burn engine with NSCR and an AFR controller for the proposed and comparable engines in the 200-bhp range is capable of meeting an emission limit of 1.0 g/bhp-hr. Further, the use of a lean-burn engine without control or with AFR only is the most cost-effective method to control NO_X emissions from 400-bhp and 800-bhp range engines and this technology is capable of meeting an emission limit of 1.5 g/bhp while the use of a rich-burn engine with an NSCR and an AFR controller for engines in the 400-bhp and 800-bhp range is less cost-effective but capable of meeting an emission limit of 1.0 g/bhp-hr. Finally, only lean-burn engine technology is available for the proposed and comparable engines in the 600-bhp range. The use of the lean-burn engine without control or with AFR for the proposed and comparable engines in the 600-bhp range is capable of meeting an emission limit of 1.5 to 2.0 g/bhp.

Typically, the Department considers a lb/hr emission limit based on 1.0 g/bhp-hr emission rate to be BACT for NO_x emissions from natural gas compressor engines. However, BCPL submitted information demonstrating that it is technically infeasible for the proposed 400-bhp Waukesha F18GL lean-burn compressor engine (1.5 g NO_x/bhp-hr), the proposed 633-bhp Caterpillar G3508LE lean-burn compressor engine (2.0 g NO_x/bhp-hr), and the proposed 860-bhp Caterpillar 3512LE lean-burn compressor engine (1.5 g NO_x/bhp-hr) to continually meet a lb/hr emission limit based on 1.0 g NO_x/bhp-hr. Therefore, the Department determined that a lb/hr emission limit which corresponds to an emission rate greater than 1.0 g/bhp-hr (as indicated above) using a lean-burn engine without control or with an AFR only for control of NO_X emissions is BACT for the affected and proposed lean-burn engines, in this case. Further, because the proposed 633-bhp Caterpillar G3508LE lean-burn compressor engine would result in a higher NO_x emission rate than the comparable 637-bhp Caterpillar G3412LE lean burn compressor engine (2.0 g/bhp-hr vs. 1.5 g/bhp-hr), BCPL submitted an incremental cost-effective ($/ton removed) analysis to demonstrate that requiring BCPL to use the comparable engine at a lower NO_x emission rate would be cost prohibitive, in this case. The table below summarizes the incremental cost-effectiveness of requiring the comparable 637-bhp Caterpillar G3412LE lean-burn compressor engine in place of the proposed 633-bhp Caterpillar G3508LE lean-burn compressor engine.

Incremental Cost Effectiveness 600-bhp Range Lean-Burn Engines				
Engine	**Emission Rate (g/bhp-hr)**	**Incremental Annual Fuel, Maintenance and Oil Cost ($ Annual)**	**Resulting NO_X Emissions (TPY)**	**Incremental Cost Effectiveness ($/ton)**
Caterpillar 3412LE 637-bhp lean-burn	1.5	29,856	9.23	**+ 9952**
Caterpillar G3508LE 633-bhp lean-burn	2.0	0	12.23	
Difference	**- 0.5**	**+ 29,856**	**- 3.0**	

As provided in the table above, requiring the comparable 637-bhp Caterpillar 3412LE lean-burn engine would cost an additional $9952 per additional ton of NO_X removed when compared to the proposed 633-bhp Caterpillar G3508LE thereby making the requirement for the comparable engine cost-prohibitive, in this case. Therefore, the Department determined that a lb/hr emission limit which corresponds to an emission rate of 2.0 g/bhp-hr is BACT for control of NO_X emissions from the proposed 633-bhp Caterpillar G3508LE lean-burn compressor engine.

Further, because all proposed rich-burn engines operating with NSCR and AFR or NSCR only are capable of meeting a lb/hr NO_x emission limit which corresponds to an emission rate of 1.0 g NO_x/bhp-hr and because the cost-effective value of using a rich-burn engine with NSCR or NSCR and AFR is economically feasible, the Department determined that this control strategy constitutes BACT for the affected and proposed rich-burn engines, in this case.

Lean-burn engines equipped with no additional control or with an AFR only and rich-burn engines equipped with NSCR and AFR are frequently used in the natural gas compression industry and the BACT determination is consistent with other recently permitted similar sources.

B. CO BACT

The following available control technologies were reviewed for the CO BACT analyses:

- Lean-burn engine with a catalytic oxidation unit and an AFR controller
- Lean-burn engine with a catalytic oxidation unit
- Lean-burn engine with an AFR controller
- Lean-burn engine with an NSCR unit and AFR controller
- Lean-burn engine with an NSCR unit
- Lean-burn engine with no additional controls
- Rich-burn engine with an NSCR unit and an AFR controller
- Rich-burn engine with an NSCR unit
- Rich-burn engine with an AFR controller
- Rich-burn engine with a catalytic oxidation unit and an AFR controller
- Rich-burn engine with a catalytic oxidation unit
- Rich-burn engine with no additional controls

Catalytic oxidation applied to a rich-burn engine is technically infeasible because the oxygen concentration from a rich-burn engine is not high enough for a catalytic oxidizer to operate properly. An NSCR unit applied to a lean-burn engine is also technically infeasible because the NSCR unit needs a rich fuel-to-air ratio to operate effectively. AFR controllers for the lean-burn Waukesha F18GL and Caterpillar G3508LE engines are not currently available.

The following tables list the technically feasible CO emission control options in order of the highest control efficiency to the lowest control efficiency for the range of acceptable engines analyzed for the project:

200-bhp Range Engines		
Control Technology	**% Control**	**CO Emission Rate (g/bhp-hr)**
Rich-Burn with NSCR and AFR or NSCR only	80	2.0
Rich-Burn without Control or with only AFR	--	10.0

400-bhp Range Engines		
Control Technology	**% Control**	**CO Emission Rate (g/bhp-hr)**
Lean-Burn with Catalytic Oxidizer	95	0.5
Rich-Burn with NSCR and AFR or NSCR only	80	2.0
Lean-Burn without Control	70	3.0
Rich-Burn without Control or with only AFR	--	10.0

600-bhp Range Engines		
Control Technology	**% Control**	**CO Emission Rate (g/bhp-hr)**
Lean-Burn with Catalytic Oxidizer and/or AFR	83	0.5
Lean-Burn without Control or with only AFR	---	3.0

800-bhp Range Engines		
Control Technology	**% Control**	**CO Emission Rate (g/bhp-hr)**
Lean-Burn with Catalytic Oxidizer	95	0.5
Rich-Burn with NSCR and AFR or NSCR only	80	2.0
Lean-Burn without Control	70	3.0
Rich-Burn without Control or with only AFR	--	10.0

The control methods listed above are widely used and cannot be eliminated solely based on environmental or energy impacts. Lean-burn engines do emit relatively higher HAP (formaldehyde) emissions than rich-burn engines. However, lean-burn engines cannot be eliminated based on higher formaldehyde emissions, but the higher formaldehyde emissions can affect the BACT determination. 600 to 800-bhp range engines without AFR control are removed from the analysis because AFR control would be required and is consistent with other recently permitted similar sources.

The table below provides a summary comparison of CO emissions and emission controls and control costs for the available and technically feasible engines proposed by BCPL and for comparable engines considered under the current permit action:

NO_x Summary and Comparison I							
Engine	**Engine Rating (bhp-hr)**	**Engine Type[a]**	**Control Technology[a]**	**CO Controlled (g/bhp-hr)**	**CO Controlled (ton/yr)[b]**	**Annualized Control Cost ($/yr)[c]**	**Cost Effectiveness ($/ton)**
Caterpillar 3306TA	200	RB	NSCR/AFR	2.0	15.4	34,360	2,231
Cummins GTA855C56	256	RB	NSCR/AFR	2.0	19.8	39,324	1,986
Caterpillar G3408TA	400	RB	NSCR/AFR	2.0	30.9	50,840	1,645
Waukesha F18GL	400	LB	LB/OC	0.5	9.6	46,240	4,817
Caterpillar G3412LE	627	LB	LB/OC	0.5	15.1	61,688	4,085
Caterpillar G3508LE	633	LB	LB/OC	0.5	15.3	67,168	4,390
Waukesha 3524GSI	840	RB	NSCR/AFR	2.0	64.8	81,299	1,255
Caterpillar 3512LE	860	LB	LB/OC	0.5	20.7	82,579	3,989

[a] RB = rich-burn engine; LB = lean-burn engine; NSCR/AFR = non-selective catalytic reduction and air-to-fuel ratio controller; LB/OC = lean-burn engine and oxidation catalyst.

[b] Amount of CO controlled is difference between 10 g CO/bhp-hr minus the controlled emission rate for rich-burn engines and 3 g CO/bhp-hr minus the controlled emission rate for lean-burn engines.

[c] Control costs were established using the estimation procedures provided in EPA's OAQPS "Cost Control Manual". A more detailed analysis of control costs is provided in the application for Permit #3038-04 and is on file with the Department.

As indicated in the Table above, only rich-burn engine technology is available for the proposed and comparable engines in the 200-bhp range. The use of a rich-burn engine with NSCR and an AFR controller for the proposed and comparable engines in the 200-bhp range is capable of meeting an emission limit of 2.0 g/bhp-hr. Further, the use of a rich-burn engine with NSCR and an AFR controller is the most cost-effective method to control CO emissions from 400-bhp and 800-bhp range engines and this technology is capable of meeting an emission limit of 2.0 g/bhp while the use of a lean-burn engine with an oxidation catalyst and an AFR controller for engines in the 400-bhp and 800-bhp range is less cost-effective but capable of meeting a lower emission rate of 0.5 g/bhp-hr. Finally, only lean-burn engine technology is available for the proposed and comparable engines in the 600-bhp range. The use of the lean-burn engine with an oxidation catalyst and an AFR controller for the proposed and comparable engines in the 600-bhp range is capable of meeting an emission limit of 0.5 g/bhp.

The use of the rich-burn engine with an NSCR unit and AFR controller is the most cost-effective method to control CO emissions from the proposed engines. Therefore, the Department determined that a lb/hr emission limit, which corresponds to an emission rate of 2.0 g/bhp-hr is BACT for the affected and proposed rich-burn engines, in this case. Further, because all proposed lean-burn engines operating with an oxidation catalyst and an AFR controller or an oxidation catalyst alone are capable of meeting a lb/hr CO emission limit which corresponds to an emission rate of 0.5 g CO/bhp-hr and because the cost-effective value of using a lean-burn engine with an oxidation catalyst and an AFR controller or an oxidation catalyst alone is economically feasible, the Department determined that this control strategy constitutes BACT for the affected and proposed lean-burn engines, in this case.

A rich-burn engine equipped with an NSCR unit and an AFR controller and capable of meeting a lb/hr emission limit which corresponds to an emission rate of 2.0 g CO/bhp-hr is frequently used in the natural gas compression industry and the BACT determination is consistent with other recently permitted similar sources. Further, a lean-burn engine equipped with an oxidation catalyst and an AFR controller or an oxidation catalyst alone and capable of meeting a lb/hr emission limit which corresponds to an emission rate of 0.5 g CO/bhp-hr is frequently used in the natural gas compression industry and the BACT determination is consistent with other recently permitted similar sources.

C. Volatile Organic Compound (VOC) BACT

BCPL did not propose any additional VOC controls or an emission limit for the engines proposed under the current permit action. The Department is not aware of any BACT determinations that have required controls for VOC emissions from any recently permitted similar source, beyond the co-benefit control achieved through the installation and operation of CO controls. Therefore, the Department determined that the use of a rich-burn engine with NSCR and an AFR controller or a lean burn engine with an oxidation catalyst and an AFR controller or an oxidation catalyst alone to meet a VOC lb/hr emission limit equivalent to an emission rate of 1.0 g VOC/bhp-hr constitutes BACT, in this case.

D. Particulate Matter with an Aerodynamic Diameter Less than or Equal to 10 microns BACT

BCPL did not propose any PM_{10} controls or PM_{10} emission limits for the engines proposed under the current permit action. The Department is not aware of any BACT determinations that have required controls for PM_{10} emissions from similar source natural gas-fired compressor engines. Due to the relatively small amount of PM_{10} emissions from operation of the proposed engines and the resultant high cost-effective value of add-on PM_{10} control, any add-on controls would be cost-prohibitive. Therefore, the Department determined that no additional controls and burning pipeline-quality natural gas only constitutes BACT for PM_{10} emissions from the proposed compressor engines.

E. Sulfur Dioxide (SO_2) BACT

BCPL did not propose any SO_2 controls or SO_2 emission limits for the engines proposed under the current permit action. The Department is not aware of any BACT determinations that have required controls for SO_2 emissions from similar source natural gas-fired compressor engines. Due to the relatively small amount of SO_2 emissions from operation of the proposed engines and the resultant high cost-effective value of add-on SO_2 control, any add-on controls would be cost-prohibitive. Therefore, the Department determined that no additional controls and burning pipeline-quality natural gas only constitutes BACT for SO_2 emissions from the proposed compressor engines.

The control options selected have controls and control costs comparable to other recently permitted similar sources and are capable of achieving the appropriate emission standards.

IV. Emission Inventory

Emission Inventory Table I: Engine Specific Emissions						
Engine	**tons/year**					
	PM_{10}	**NO_X**	**VOC**	**CO**	**SO_X**	**HCHO**
Engine #1[a]						
400-bhp Waukesha F18 GL	0.001	5.79	3.86	1.93	0.01	0.19
Engine #2 and Engine #3[b]						
256-bhp Cummins GTA 855C256	0.09	2.47	2.47	4.94	0.01	0.15
400-bhp Caterpillar G3408TA	0.13	3.86	3.86	7.73	0.01	0.23
400-bhp Waukesha F18GL	0.001	5.79	3.86	1.93	0.01	0.19
633-bhp Caterpillar G3508LE	0.00	12.23	6.11	3.06	0.01	0.43
840-bhp Waukesha 3524GSI	0.27	8.11	8.11	16.23	0.02	0.41
860-bhp Caterpillar 3512LE	0.002	12.46	8.31	4.15	0.02	0.58

[a] BCPL owns and operates one 400-bhp Waukesha F18GL lean-burn engine added to facility in accordance with the de minimis rule under ARM 17.8.745.
[b] Permit #3038-04 authorized the installation and operation of any combination of two of the listed engines.

Emission Inventory Table II: Worst-Case Allowable Emissions						
Engine	**Tons/year**					
	PM_{10}	**NO_X**	**VOC**	**CO**	**SO_X**	**HCHO**
400-bhp Waukesha F18GL[a]	0.001	5.79	3.86	1.93	0.01	0.19
840-bhp Waukesha 3524 GSI	0.27	8.11	8.11	16.23	0.02	0.41
860-bhp Caterpillar 3512LE	0.002	12.46	8.31	4.15	0.02	0.58
Total[b]	0.54	24.92	16.62	32.46	0.04	1.16

[a] BCPL operates one 400-bhp Waukesha F18GL lean-burn engine added to facility in accordance with the de minimis rule under ARM 17.8.745.
[b] Total emissions include emissions from the 400-bhp Waukesha F18GL lean-burn engine added to facility in accordance with the de minimis rule and the pollutant-specific worst-case emissions from any combination of two engines allowed under Section II.A.3 of Permit #3038-04.

ENGINE #1

400-bhp Waukesha F18GL Lean-Burn Compressor Engine

Brake Horsepower: 400 bhp
Hours of operation: 8,760 hr/yr
Fuel Consumption: 2.86 MMBtu/hr (Maximum Design)

PM_{10} Emissions
Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Calculations: 2.86 MMBtu/hr * 7.71E-05 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.001 ton/yr

NO_X Emissions
Emission factor: 1.50 gram/bhp-hour (BACT Determination)
Calculations: 1.50 gram/bhp-hour * 400 bhp * 0.002205 lbs/gram = 1.32 lb/hr
1.32 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 5.79 ton/yr

VOC Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 0.44 lb/hr
0.44 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 1.93 ton/yr

CO Emissions
Emission factor: 0.50 gram/bhp-hour (BACT Determination)
Calculations: 0.50 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 0.44 lb/hr
0.44 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 1.93 ton/yr

SO_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Calculations: 2.86 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

HCHO Emissions
Emission factor: 0.05 gram/bhp-hour (Manufacturer's Information)
Calculations: 0.05 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 0.04 lb/hr
0.04 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.19 ton/yr

ENGINES #2 and #3

256-bhp CumminsGTA855C256 Rich-Burn Compressor Engine

Brake Horsepower: 256 bhp
Hours of operation: 8,760 hr/yr
Fuel Consumption: 2.15 MMBtu/hr (Maximum Design)

PM_{10} Emissions
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Calculations: 2.15 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.020 lb/hr
0.020 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.09 ton/yr

NO_X Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 256 bhp * 0.002205 lbs/gram = 0.565 lb/hr
0.565 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 2.47 ton/yr

VOC Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 256 bhp * 0.002205 lbs/gram = 0.565 lb/hr
0.565 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 2.47 ton/y r

CO Emissions
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 256 bhp * 0.002205 lb/gram = 1.13 lb/hr
1.13 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 4.94 ton/yr

SO_2 Emissions
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Calculations: 2.15 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.001 lb/hr
0.001 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.006 ton/yr

HCHO Emissions
Emission factor: 0.06 gram/bhp-hour (Similar Source Information)
Calculations: 0.06 gram/bhp-hour * 256 bhp * 0.002205 lb/gram = 0.03 lb/hr
0.03 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.15 ton/yr

400-bhp Caterpillar G3408TA Rich-Burn Compressor Engine

Brake Horsepower: 400 bhp
Hours of operation: 8,760 hr/yr
Fuel Consumption: 3.02 MMBtu/hr (Maximum Design)

PM_{10} Emissions
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Calculations: 3.02 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.029 lb/hr
0.029 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.13 ton/yr

NO_X Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 400 bhp * 0.002205 lbs/gram = 0.882 lb/hr
0.882 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 3.86 ton/yr

VOC Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 0.882 lb/hr
0.882 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 3.86 ton/yr

CO Emissions
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 1.76 lb/hr
1.76 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 7.73 ton/yr

SO_2 Emissions
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Calculations: 3.01 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.002 lb/hr
0.002 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

HCHO Emissions
Emission factor: 0.06 gram/bhp-hour (Manufacturer's Information)
Calculations: 0.06 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 0.05 lb/hr
0.05 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.23 ton/yr

400-bhp Waukesha F18GL Lean-Burn Compressor Engine

Brake Horsepower: 400 bhp
Hours of operation: 8,760 hr/yr
Fuel Consumption: 2.86 MMBtu/hr (Maximum Design)

PM_{10} Emissions
Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Calculations: 2.86 MMBtu/hr * 7.71E-05 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.001 ton/yr

NO_X Emissions
Emission factor: 1.50 gram/bhp-hour (BACT Determination)
Calculations: 1.50 gram/bhp-hour * 400 bhp * 0.002205 lbs/gram = 1.32 lb/hr
1.32 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 5.79 ton/yr

VOC Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 0.44 lb/hr
0.44 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 1.93 ton/yr

CO Emissions
Emission factor: 0.50 gram/bhp-hour (BACT Determination)
Calculations: 0.50 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 0.44 lb/hr
0.44 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 1.93 ton/yr

SO_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Calculations: 2.86 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.00 lb/hr
0.00 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

HCHO Emissions
Emission factor: 0.05 gram/bhp-hour (Manufacturer's Information)
Calculations: 0.05 gram/bhp-hour * 400 bhp * 0.002205 lb/gram = 0.04 lb/hr
0.04 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.19 ton/yr

633-bhp Caterpillar G3508LE Lean-Burn Compressor Engine

Brake Horsepower: 633 bhp
Hours of operation: 8,760 hr/yr
Fuel Consumption: 4.83 MMBtu/hr (Maximum Design)

PM_{10} Emissions
Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Calculations: 4.83 MMBtu/hr * 7.71E-05 lb/MMBtu = 0.0004 lb/hr
0.0004 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.002 ton/yr

NO_X Emissions
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 633 bhp * 0.002205 lbs/gram = 2.79 lb/hr
2.79 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 12.23 ton/yr

VOC Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 633 bhp * 0.002205 lb/gram = 1.40 lb/hr
1.40 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 6.11 ton/yr

CO Emissions
Emission factor: 0.50 gram/bhp-hour (BACT Determination)
Calculations: 0.50 gram/bhp-hour * 633 bhp * 0.002205 lb/gram = 0.70 lb/hr
0.70 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 3.06 ton/yr

SO_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Calculations: 4.83 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.003 lb/hr
0.00 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.01 ton/yr

HCHO Emissions
Emission factor: 0.07 gram/bhp-hour (Manufacturer's Information)
Calculations: 0.07 gram/bhp-hour * 633 bhp * 0.002205 lb/gram = 0.10 lb/hr
0.10 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.43 ton/yr

840-bhp Waukesha 3524GSI Rich-Burn Compressor Engine

Brake Horsepower: 840 bhp
Hours of operation: 8,760 hr/yr
Fuel Consumption: 6.57 MMBtu/hr (Maximum Design)

PM_{10} Emissions
Emission Factor: 9.50E-03 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Calculations: 6.57 MMBtu/hr * 9.50E-03 lb/MMBtu = 0.06 lb/hr
0.06 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.27 ton/yr

NO_X Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 840 bhp * 0.002205 lbs/gram = 1.85 lb/hr
1.85 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 8.11 ton/yr

VOC Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 840 bhp * 0.002205 lb/gram = 1.85 lb/hr
1.85 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 8.11 ton/yr

CO Emissions
Emission factor: 2.00 gram/bhp-hour (BACT Determination)
Calculations: 2.00 gram/bhp-hour * 840 bhp * 0.002205 lb/gram = 3.70 lb/hr
3.70 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 16.23 ton/yr

SO_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-3, 7/00)
Calculations: 6.57 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.004 lb/hr
0.004 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

HCHO Emissions
Emission factor: 0.05 gram/bhp-hour (Manufacturer's Information)
Calculations: 0.05 gram/bhp-hour * 840 bhp * 0.002205 lb/gram = 0.09 lb/hr
0.09 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.41 ton/yr

860-bhp Caterpillar G3512LE Lean-Burn Compressor Engine

Brake Horsepower: 860 bhp
Hours of operation: 8,760 hr/yr
Fuel Consumption: 6.42 MMBtu/hr (Maximum Design)

PM_{10} Emissions
Emission Factor: 7.71E-05 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Calculations: 6.42 MMBtu/hr * 7.71E-05 lb/MMBtu = 0.0005 lb/hr
0.0005 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.002 ton/yr

NO_X Emissions
Emission factor: 1.50 gram/bhp-hour (BACT Determination)
Calculations: 1.50 gram/bhp-hour * 860 bhp * 0.002205 lbs/gram = 2.84 lb/hr
2.84 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 12.46 ton/yr

VOC Emissions
Emission factor: 1.00 gram/bhp-hour (BACT Determination)
Calculations: 1.00 gram/bhp-hour * 860 bhp * 0.002205 lb/gram = 1.90 lb/hr
1.90 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 8.31 ton/yr

CO Emissions
Emission factor: 0.50 gram/bhp-hour (BACT Determination)
Calculations: 0.50 gram/bhp-hour * 860 bhp * 0.002205 lb/gram = 0.95 lb/hr
0.95 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 4.15 ton/yr

SO_2 Emission
Emission factor: 5.88E-04 lb/MMBtu (AP-42, Chapter 3, Table 3.2-2, 7/00)
Calculations: 6.42 MMBtu/hr * 5.88E-04 lb/MMBtu = 0.004 lb/hr
0.004 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.02 ton/yr

HCHO Emissions
Emission factor: 0.07 gram/bhp-hour (Manufacturer's Information)
Calculations: 0.07 gram/bhp-hour * 860 bhp * 0.002205 lb/gram = 0.13 lb/hr
0.13 lb/hr * 8,760 hr/yr * 0.0005 ton/lb = 0.58 ton/yr

V. Existing Air Quality

The BCPL Squirrel Creek Battery is located north of Montana State Highway 314 and east/northeast of Squirrel Creek, approximately 1 mile northwest of Decker, Montana. The legal description of the site location is the NW¼ of the NE¼ of Section 30, Township 9 South, Range 40 East in Big Horn County, Montana. The air quality classification of Big Horn County is "Unclassifiable/Attainment" for all pollutants (40 CFR 81.327). The closest PSD Class I area is the Northern Cheyenne Indian Reservation (NCIR), which is located approximately 24 miles north of the facility.

VI. Ambient Air Impact Analysis

The maximum estimated emissions from the facility would be approximately 33 tons per year (TPY) of nitrogen oxides (NO_x), 44 TPY of carbon monoxide (CO), 20 TPY volatile organic compounds (VOCs), 0.044 TPY of sulfur oxides (SO_x), 0.67 TPY of particulate matter (PM), and 1.35 TPY formaldehyde. Because the proposed project will take place at a facility which is located in a county currently undergoing relatively significant industrial growth associated with coal bed methane (CBM) development, the Department determined that modeling for nitrogen dioxide (NO_2) and CO emissions is required for the proposed project. The modeling was conducted to demonstrate compliance with the National and Montana Ambient Air Quality Standards (NAAQS/MAAQS). In addition, although a New Source Review (NSR) Prevention of Significant Deterioration (PSD) increment analysis was not required for this permitting action, the Department has requested that all permittees of CBM natural gas compressor stations model for PSD increments for NO_x; therefore, a PSD increment analysis was also conducted.

The modeling for the project was conducted by Aspen Consulting & Engineering, Inc. (Aspen). EPA's AERMOD model was used with 1 year of 'on-site' meteorological data from the Spring Creek Mine meteorological station, located 8 km east of the site. Spring Creek Mine met data from 2001 was used in AERMET as on-site data. Sheridan, Wyoming NWS data was input as surface data, used to substitute missing data elements from the on-site data. Upper air data from the Glasgow NWS station was also used in AERMET. During the review process, the Department released information indicating that the AERMET data may contain incorrect wind speeds. Because of this potential problem, the Department checked the modeling results using an additional set of met data and found the modeling results were acceptable as submitted.

Table 1 below shows the air dispersion modeling results for the 1-hour and 8-hour CO concentrations. Aspen modeled the CO and NO_x emissions from all the point sources in a single run, and the fugitive emissions from the nearby Decker and Spring Creek coal mines in a separate model run as shown in Tables 1 and 2 below. The modeled CO concentrations from the Squirrel Creek Battery and the surrounding sources represent about 1% of the 8-hour ambient standard and 1% of the 1-hour standards.

The modeling scenario chosen for the project represents the worst case NO_X emissions but not the worst case CO emissions. Modeled CO emissions were only 20 TPY, which is 45% of the possible total of 44 TPY. Multiplying the CO results by a factor of two would show impacts less than the modeling significance level and far less than the ambient standards.

Table 1. Ambient Air Dispersion Results for CO

Year	Avg. Period	PointSrc Modeled Conc. ($\mu g/m^3$)	Mines Modeled Conc. ($\mu g/m^3$)	Back-ground Conc. ($\mu g/m^3$)	Ambient Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	MAAQS ($\mu g/m^3$)	Modeling Significance
2001	1-HR	168	114	1,725	2,007	40,000	26,450	2,000
2001	8-HR	60	15	1,150	1,225	10,000	10,000	500

Table 2 below shows the air dispersion modeling results for NO_2. The results include the total modeled concentrations for two source groups: All and New. The "All" group consists of all sources including the proposed sources for this application, Montana existing NO_x sources, and Wyoming existing NO_x sources. The "New" group includes only the two proposed engines at the Squirrel Creek Battery. In accordance with Department modeling guidance/policy, the Ambient Ratio Method and the Ozone Limiting Method (OLM) were used to convert the modeled concentrations to NO_2 for comparison to the NAAQS/MAAQS.

Table 2. Ambient Air Dispersion Model Results for NO_2

Avg. Period	Source Group	Point Src. Modeled NOx Conc. ($\mu g/m^3$)	OLM[a] / ARM[b] Adjusted to NO_2 ($\mu g/m^3$)	Mine Modeled NOx ($\mu g/m^3$)	Back-ground Conc. ($\mu g/m^3$)	Ambient Conc. ($\mu g/m^3$)	NAAQS/ MAAQS ($\mu g/m^3$)	% of NAAQS/ MAAQS
Annual	All	16.1	12.7	0.61	6	19.3	100/94	19 /21
Annual	New	11.2	8.4	0.61	6	15.0	100/94	15 /16
1-HR[c]	All	200	200	136	75	411	----/564	---- / 73
1-HR[c]	New	135	135	136	75	346	----/564	---- / 61

a. Modeled 1-hour NOx concentrations were converted to NO_2 using the Ozone Limiting Method (OLM).
b. Modeled annual NOx concentrations were converted to NO_2 using the Ambient Ratio Method (ARM).
c. Peak 1-hour impacts are modeled high-second-high impact.

As shown in Table 2, the peak-modeled annual NO_2 concentration for all of the modeled coal bed methane sources was 12.7 $\mu g/m^3$ while the individual contribution from the Squirrel Creek Battery was 8.4 $\mu g/m^3$. The peak (high-2nd-high) modeled 1-hour NO_2 concentration was 346 $\mu g/m^3$ for all sources and 135 $\mu g/m^3$ for the Squirrel Creek Battery. The peak annual NO_2 impact for all sources occurred at a receptor near the Squirrel Creek facility boundary, and was clearly dominated by the Squirrel Creek sources. The peak (high-2nd-high) modeled 1-hour NO_2 impacts from the Squirrel Creek facility occurred at a receptor approximately 400 km northeast of the boundary in elevated terrain.

The Squirrel Creek Battery was modeled using a "worst case" analysis of two large compressors proposed under the current permit action. The current permit action allows BCPL to use two compressor engines with a total combined capacity not to exceed 1720 hp. This analysis is conservative and would be sufficient for other configurations or different engine sizes.

Although a PSD increment analysis was not required for this permitting action, Table 3 shows the results of the Class II increment analysis. While modeling demonstrations for ambient standards typically use permitted allowable emissions to demonstrate compliance with ambient standards, modeling demonstrations for PSD increments use actual emissions. In this case, actual emissions were not available so permitted allowable emissions were entered into the model which provided a worst-case and conservative scenario.

Table 3. Class II NO_2 Modeling Results

Year	Avg. Period	Source Group	Class II Modeled Conc[a] ($\mu g/m^3$)	Class II Increment ($\mu g/m^3$)	% of Class II Increment
2001	Annual	All	13.3	25	53
2001	Annual	New	9.0	25	36

a. Modeled annual NOx concentrations were converted to NO_2 using the Ambient Ratio Method (ARM).

The Squirrel Creek Battery would consume approximately 36% of the Class II increment while the all sources group (Squirrel Creek Battery and other existing Montana and Wyoming sources) would consume about 53% of the increment in this modeling domain. Since allowable emissions were used instead of actual emissions for this analysis, the results are conservatively high.

The receptors placed along the southeastern NCIR boundary did not encompass the entire southern boundary of the Class I area. The modeled NO_x concentrations at the receptors used were well below the Class I increment as shown in Table 4 and the Class I increment is not at risk in this permitting analysis. The highest modeled annual NO_x impact on the NCIR was 0.0648 $\mu g/m^3$, which is about 2.6% of the Class I NO_x increment.

Table 4. Class I Modeling Results

Year	Avg. Period	Source Group	UTM East (X) (m)	UTM North (Y) (m)	Class I Modeled Conc ($\mu g/m^3$)	Class I Increment ($\mu g/m^3$)	% of Class II Increment
2001	Annual	All	369459	5028415	0.1831[a]	2.5	2.6

[a.] Ambient Ratio Method not applied.

CONCLUSION

The Department determined, based on ambient air modeling, that the impacts from this permitting action will be minor. The proposed changes under the current permit action are not expected to cause or contribute to a violation of any NAAQS/MAAQS or PSD increment.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

An environmental assessment, required by the Montana Environmental Policy Act, was completed for this project. A copy is attached.

Permit Analysis Prepared By: M. Eric Merchant
Date: July 23, 2007

DEPARTMENT OF ENVIRONMENTAL QUALITY
Permitting and Compliance Division
Air Resources Management Bureau
P.O. Box 200901, Helena, Montana 59620
(406) 444-3490

FINAL ENVIRONMENTAL ASSESSMENT (EA)

Issued To: Bitter Creek Pipelines, LLC
Squirrel Creek Battery
WBI Holdings, Inc.
P.O. Box 131
Glendive, MT 59330

Air Quality Permit Number: 3038-04

Preliminary Determination Issued: August 1, 2007
Department Decision Issued: August 22, 2007
Permit Final: September 7, 2007

1. *Legal Description of Site*: BCPL owns and operates a natural gas compressor station and associated equipment located north of Montana State Highway 314 and east/northeast of Squirrel Creek, approximately 1 mile northwest of Decker, Montana. The legal description of the site location is the NW¼ of the NE¼ of Section 30, Township 9 South, Range 40 East in Big Horn County, Montana. The facility is known as the Squirrel Creek Battery.

2. *Description of Project*: The current permit action would allow the addition of two natural gas compressor engines with a maximum-rated design capacity of up to 860-brake horsepower (bhp) and would remove two 380-bhp capacity Caterpillar natural gas compressor engines from permitted BCPL operations. Further, the current permit action would remove one of the two 400-bhp capacity Waukesha F18GL compressor engines previously added to the facility in accordance with the ARM 17.8.745 (de minimis rule). In addition, the conditions/limits applicable to the proposed engines with a maximum rated design capacity of up to 860-bhp would be written in a de minimis friendly format to allow for operational flexibility.

3. *Objectives of Project*: The proposed project would provide BCPL with necessary operational flexibility and increased business and revenue for the company.

4. *Alternatives Considered*: In addition to the proposed action, the Department also considered the "no-action" alternative. The "no-action" alternative would deny issuance of the air quality preconstruction permit to the proposed facility. However, the Department does not consider the "no-action" alternative to be appropriate because BCPL demonstrated compliance with all applicable rules and regulations as required for permit issuance. Therefore, the "no-action" alternative was eliminated from further consideration.

5. *A Listing of Mitigation, Stipulations, and Other Controls*: A list of enforceable conditions, including a BACT analysis, would be included in Permit #3038-04.

6. *Regulatory Effects on Private Property*: The Department considered alternatives to the conditions imposed in this permit as part of the permit development. The Department determined that the permit conditions are reasonably necessary to ensure compliance with applicable requirements and demonstrate compliance with those requirements and do not unduly restrict private property rights.

7. The following table summarizes the potential physical and biological effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Terrestrial and Aquatic Life and Habitats			X			Yes
B	Water Quality, Quantity, and Distribution			X			Yes
C	Geology and Soil Quality, Stability and Moisture			X			Yes
D	Vegetation Cover, Quantity, and Quality			X			Yes
E	Aesthetics			X			Yes
F	Air Quality			X			Yes
G	Unique Endangered, Fragile, or Limited Environmental Resources			X			Yes
H	Demands on Environmental Resource of Water, Air and Energy			X			Yes
I	Historical and Archaeological Sites				X		Yes
J	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL PHYSICAL AND BIOLOGICAL EFFECTS:
The following comments have been prepared by the Department.

A. Terrestrial and Aquatic Life and Habitats

Minor impacts to terrestrial and aquatic life and habitats would be expected from the proposed project because deer, antelope, coyotes, geese, ducks, and other terrestrials would potentially use the area around the facility and because the addition of the proposed equipment would result in a minor increase of air pollution from facility operations. The facility would emit air pollutants and corresponding deposition of pollutants would occur; however, as described in Section VI of the permit analysis to Permit #3038-04 and Section 7.F. of this EA, the Department determined that any impacts from deposition would be minor. In addition, because the proposed site of operation is an existing and previously permitted industrial site, the proposed changes would be consistent with existing operations and would therefore result in only minor additional and consistent impacts to any terrestrial and aquatic life and habitats located within the proposed area of operation. Overall, any impacts to terrestrial and aquatic life and habitats would be minor.

B. Water Quality, Quantity, and Distribution

Minor impacts would be expected on water quality, quantity, and distribution from the proposed project because the addition of the proposed equipment would result in a minor increase of air pollution from facility operations. The facility is a central compressor station, not a production field facility; therefore, no discharges into surface water would occur from operating the facility. However, minor amounts of water may be required to control fugitive dust emissions from the access roads and the general facility property. In addition, the facility would emit air pollutants and corresponding deposition of pollutants would occur; however, as described in Section VI of the permit analysis to Permit #3038-04 and Section 7.F. of this EA, the Department determined that any impact resulting from the deposition of pollutants would be minor.

Further, water quality, quantity, and distribution would not be impacted from construction activities associated with the current permit action because there is no surface water at or relatively close to the site and any minor construction activities would take place within the

existing industrial site. Furthermore, no discharges into surface water would occur and no use of surface water would be expected for facility construction. Therefore, no impacts to water quality, quantity, and distribution would be expected from facility construction. Overall, any impacts to water quality, quantity, and distribution would be minor.

C. Geology and Soil Quality, Stability, and Moisture

Minor impacts would occur on the geology and soil quality, stability, and moisture from the proposed project because minor construction would be required for the current project. However, construction activities would take place within an existing industrial site currently used for similar source operations. Since most of the infrastructure needed to accommodate the compression and transmission of natural gas (natural gas pipelines, access roads, etc.) would already be developed, any impacts would be minor. In addition, no discharges, other than minor air emissions, would occur at the facility as a result of the proposed project.

Further, additional deposition of pollutants would occur; however, as described in Section VI of the permit analysis to Permit #3038-04 and Section 7.F of this EA, the Department determined that any impacts resulting from the deposition of pollutants on the areas surrounding the site would be minor. Overall, any impacts to the geology and soil quality, stability, and moisture would be minor.

D. Vegetation Cover, Quantity, and Quality

Minor impacts would occur on vegetation cover, quantity, and quality because minor construction would be required to accommodate the proposed new equipment. Small buildings would be constructed; however, these buildings would be erected within an existing industrial site currently used for similar source operations. Since most of the infrastructure needed to accommodate the compression and transmission of natural gas (natural gas pipelines, access roads, etc.) would already be developed, any impacts would be minor. No discharges, other than minor air emissions, would occur as a result of the proposed new equipment at the facility.

Further, deposition of pollutants would occur as a result of the proposed project; however, as described in Section VI of the permit analysis to Permit #3038-04 and Section 7.F of this EA, the Department determined that any impacts resulting from the deposition of pollutants on the areas surrounding the site would be minor. Overall, any impacts to the vegetation cover, quantity, and quality in the area would be minor.

E. Aesthetics

Minor impacts would result on the aesthetic value of the area because the proposed project would require minor construction activities; however, construction activities would occur within an existing industrial site currently used for similar source operations. Since most of the infrastructure needed to accommodate the compression and transmission of natural gas (natural gas pipelines, access roads, etc.) would already be developed, any visual aesthetic impacts would be minor.

The proposed new equipment would also create noise in the area. However, any auditory aesthetic impacts would be minor because the engines would be located within a building in an area currently used for such industrial purposes. Overall, any aesthetic impacts would be minor.

F. Air Quality

The air quality of the area would realize minor impacts from the proposed project because the proposed project would result in a minor increase of emissions of the following air pollutants: PM_{10}; NO_x; VOC (including HAPs); and SO_x. Air emissions from the facility would be minimized by limitations and conditions that would be included in Permit #3038-04. Conditions would include, but would not be limited to, BACT emission limits, opacity limitations on the proposed engines, and opacity limitations on the general facility.

In addition, because the proposed project would take place at a facility which would be located in a county currently undergoing relatively significant industrial growth associated with coal bed methane (CBM) development, the Department determined that modeling for nitrogen dioxide (NO_2) and CO emissions is required for the proposed project. The modeling was conducted to demonstrate compliance with the NAAQS/MAAQS. In addition, although a New Source Review (NSR) Prevention of Significant Deterioration (PSD) increment analysis was not required for this permitting action, the Department has requested that all permittees of CBM natural gas compressor stations model for PSD increments for NO_x; therefore, a PSD increment analysis was also conducted. The Department determined, based on ambient air modeling, that the impacts from this permitting action would be minor. The proposed changes under the current permit action would not be expected to cause or contribute to a violation of any NAAQS/MAAQS or PSD increment.

Finally, since controlled potential emissions from the proposed station would exhibit good dispersion characteristics and would not result in any exceedance of any NAAQS/MAAQS or PSD increment, the Department believes that controlled emissions from the source would result in only minor impacts to air quality of the project area.

G. Unique Endangered, Fragile, or Limited Environmental Resources

The proposed project includes the installation and operation of equipment that would result in a minor increase of air pollutant emissions from the existing industrial site. Since the proposed changes would occur at an existing industrial site, the Department determined that any impacts to any existing unique endangered, fragile, or limited environmental resource due to the minor increase in deposition of air pollutants associated with the proposed project would be minor and consistent with current impacts. Overall, any impact to any existing unique endangered, fragile, or limited environmental resource in the proposed project area would be minor.

H. Demands on Environmental Resources of Water, Air, and Energy

The proposed project would have minor impacts on the demands for the environmental resources of air and water because the proposed project would result in the emission of air pollutants. Deposition of pollutants would occur as a result of operating the proposed equipment; however, as explained in Section VI of the permit analysis to Permit #3038-04 and Section 7.F of this EA, the Department determined that any impacts on air and water resources from the proposed project would be minor.

The proposed project would be expected to have minor impacts on the demand for the environmental resource of energy because power would be required at the site. Further, the proposed project would result in a minor impact to the non-renewable energy resource of natural gas in the proposed area of operation because the project would result in the compression and transfer of natural gas resulting in a reduction of that resource in the area. The impact on the demand for the environmental resource of energy would be minor because the proposed project would be consistent with existing operations at the site. Overall, the impacts for the demands on the environmental resources of water, air, and energy would be minor.

I. Historical and Archaeological Sites

The proposed project would not result in any impact to any existing historical and archaeological sites in the proposed project area because the proposed new equipment would operate within an existing industrial area and would not require any additional ground-disturbing construction activities. According to previous correspondence from the Montana State Historic Preservation Office, there is low likelihood of any disturbance to any known archaeological or historic site, given previous industrial disturbance within a given area. Therefore, the Department determined that the proposed project would not impact any existing historical or archaeological site.

J. Cumulative and Secondary Impacts

The cumulative and secondary impacts on the physical and biological aspects of the human environment in the immediate area would be minor due to the minor amount of construction activities associated with the proposed project and because the proposed project would be consistent with existing industrial operations at the proposed site. The Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in Permit #3038-04.

Increased additional facilities (production field facilities) would likely locate in the area to withdraw natural gas from the nearby area and supply the station with gas for dehydration, compression, and transmission. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate regulating authority. Environmental impacts from any future facilities would be assessed through the appropriate permitting process. Overall, any cumulative and secondary impacts resulting from the proposed project would be minor.

8. The following table summarizes the potential economic and social effects of the proposed project on the human environment. The "no-action" alternative was discussed previously.

		Major	Moderate	Minor	None	Unknown	Comments Included
A	Social Structures and Mores			X			Yes
B	Cultural Uniqueness and Diversity			X			Yes
C	Local and State Tax Base and Tax Revenue			X			Yes
D	Agricultural or Industrial Production			X			Yes
E	Human Health			X			Yes
F	Access to and Quality of Recreational and Wilderness Activities			X			Yes
G	Quantity and Distribution of Employment			X			Yes
H	Distribution of Population			X			Yes
I	Demands for Government Services			X			Yes
J	Industrial and Commercial Activity			X			Yes
K	Locally Adopted Environmental Plans and Goals				X		Yes
L	Cumulative and Secondary Impacts			X			Yes

SUMMARY OF COMMENTS ON POTENTIAL ECENOMIC AND SOCIAL EFFECTS: The following comments have been prepared by the Department.

A. Social Structures and Mores
B. Cultural Uniqueness and Diversity

The proposed project would cause minor, if any, impacts to the social structures and mores and cultural uniqueness and diversity of the area because the proposed project would take place in a relatively remote location currently used for such industrial purposes. Further, the operation of a compressor station of this type, including the proposed project, necessitates relatively few employees for normal operations and would likely not result in any, or very little, immigration of new people to the area for employment purposes. Therefore, the proposed project would have little, if any, impact on the social structures and mores and cultural uniqueness and diversity in the area.

Additional activity (vehicle traffic, construction equipment, etc.) would be noticeable during construction activities associated with the proposed project; however, compressor stations, including the proposed new equipment, typically would not require day-to-day employees and once the project is constructed, activities associated with the operation of the facility would be minor. Overall, any impacts to the above social and economic resources in the area would be minor.

C. Local and State Tax Base and Tax Revenue

The proposed project would result in minor impacts to the local and state tax base and tax revenue because relatively few or no new employees would be needed as a result of the proposed project. Further, the proposed project would necessitate relatively little construction and typically would not require an extended period of time for completion; therefore, any construction related jobs would be temporary and any corresponding impacts on the tax base/revenue of a given area would be minor. Overall, any impacts to the local and state tax base and tax revenue would be minor.

D. Agricultural or Industrial Production

The land surrounding the proposed location is rural agricultural grazing land; however, the proposed site itself is currently used for industrial purposes consistent with the proposed project. Therefore, the proposed project would result in only minor, if any, impacts to agricultural production in the area. The proposed project would have minor impacts to industrial production in the area because the proposed project would add new equipment to an existing industrial source locating in an existing industrial area. However, because the proposed project would be relatively small by industrial standards, the project would likely not result in additional industrial sources (not directly associated with operations) moving to a given area.

Increased additional associated facilities (production field facilities) would likely locate in the area to withdraw the natural gas from the nearby area to supply the station with gas to be dehydrated and compressed for transmission through a natural gas pipeline. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate regulating authority. Impacts from any future facilities would be assessed through the appropriate permitting process. Overall, any impacts to agricultural or industrial production of the area would be minor.

E. Human Health

The proposed project would result in minor, if any, impacts to human health. As explained in Section VI of the permit analysis to Permit #3038-04 and Section 7.F of this EA, deposition of pollutants would occur; however, the Department determined that the proposed project would comply with all applicable air quality rules, regulations, and standards. These rules, regulations, and standards are designed to be protective of human health. Overall any impacts to human health would be minor.

F. Access to and Quality of Recreational and Wilderness Activities

The proposed project would not impact any access to recreational and wilderness activities because the proposed project would occur at an existing industrial facility used for such purposes. The proposed project would have minor impacts on the quality of recreational and wilderness activities in the area because the proposed project, while relatively small by industrial standards, would be visible and would produce noise from the site. Overall any impacts to the access to and quality of recreational and wilderness activities in the area would be minor.

G. Quantity and Distribution of Employment
H. Distribution of Population

The proposed project would have minor, if any, impacts on the quantity and distribution of employment and the distribution of population in the area because relatively few, if any, additional employees would be required for normal operations thereby resulting in relatively little, if any, new immigration to the area. In addition, temporary construction-related positions would result from this project but any impacts to the quantity and distribution of employment from construction related employment would be minor due to the relatively small size of the facility and the relatively short time period that would be required for constructing the proposed facility changes. Overall, any impacts to the quantity and distribution of employment and the distribution of population in the area would be minor.

I. Demands for Government Services

The project would result in minor impacts on the demands for government services because additional time would be required by government agencies to issue Permit #3038-04 and to assure compliance with applicable rules, standards, and conditions contained in Permit #3038-04. In addition, there would be minor impacts on the demands for government services to regulate the minor increase in vehicle traffic that would be associated with constructing and operating the proposed new equipment. The increase in vehicle traffic would be primarily during facility construction because compressor stations typically do not require day-to-day employees. Therefore, vehicle traffic would be relatively minor due to the relatively short time period that would be required to construct the proposed changes. Overall, any demands for government services to regulate the facility or activities associated with the facility would be minor due to the relatively small size of the facility.

J. Industrial and Commercial Activity

Only minor impacts would be expected on the local industrial and commercial activity because the proposed project would represent only a minor change in the industrial and commercial activity in the area. The proposed project would be relatively small and would take place at a relatively remote location currently used for such purposes.

Increased additional facilities (production field facilities) would likely locate in the area to withdraw the natural gas from the area and supply the station with gas to be dehydrated and compressed for transmission through a natural gas pipeline. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate regulating authority. Impacts from any future facilities would be assessed through the appropriate permitting process. Overall, any impacts from the proposed project to industrial and commercial activity in the area would be minor.

K. Locally Adopted Environmental Plans and Goals

The Department is unaware of any locally adopted environmental plans or goals that would be affected by the proposed project. The permit would ensure compliance with state standards and goals.

L. Cumulative and Secondary Impacts

The cumulative and secondary impacts from this project would result in minor impacts to the economic and social aspects of the human environment in the immediate area. Due to the relatively small size of the project, the industrial production, employment, and tax revenue (etc.) impacts resulting from the proposed project would be minor. In addition, the Department believes that this facility could be expected to operate in compliance with all applicable rules and regulations as would be outlined in Permit #3038-04.

Increased additional facilities (production field facilities) would likely locate in the area to withdraw the natural gas from the area and supply the station with gas to be dehydrated and compressed for transmission through a natural gas pipeline. However, any future facility would be required to apply for and receive the appropriate permits from the appropriate regulating authority. Impacts from any future facilities would be assessed through the appropriate permitting process. Overall, any cumulative and secondary impacts resulting from the proposed project would be minor.

Recommendation: No Environmental Impact Statement (EIS) is required.

If an EIS is not required, explain why the EA is an appropriate level of analysis: The current permit action is for the modification of an existing natural gas central compressor station. This EA assesses the impacts specific to the proposed project. Permit #3038-04 would include conditions and limitations to ensure the facility would operate in compliance with all applicable air quality rules and regulations. In addition, there are no significant impacts associated with the proposed project.

Other groups or agencies contacted or which may have overlapping jurisdiction: Montana Historical Society – State Historic Preservation Office; Natural Resource Information System – Montana Natural Heritage Program.

Individuals or groups contributing to this EA: Montana Department of Environmental Quality; Montana Historical Society – State Historic Preservation Office; Natural Resource Information System – Montana Natural Heritage Program.

EA prepared by: M. Eric Merchant
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